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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/973,914

10/11/2001

Makoto Oyanagi

KYO-101

7458

7590

11/17/2005

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EXAMINER

HUNTSINGER, PETER K

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,914

Applicant(s)

OYANAGI, MAKOTO

Examiner

Peter K. Huntsinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 6-17 and 19-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6, 7-17, and 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Tran
DOUGLAS Q. TRAN
PRIMARY EXAMINER

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 02 September 2005 has been entered in full.
2. In response to the amendments, the objections to claims 1-20 have been dropped.

Response to Arguments

3. Applicant's arguments filed 02 September 2005 have been fully considered but they are not persuasive.

Applicant argues on pages 12 and 13 of the response that:

The data stored in Iwai's shift registers 111-114 have no relationship to print passes.

- a. The secondary reference, Kanematsu et al., teach the limitation classifying data into compliance with even and odd bit data and print passes (col. 15, lines 19-24). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues on pages 12 and 13 of the response that:

Kanematsu requires additional operation time to classify the bitmap data, and thus does not disclose the print executer of Claim 1.

b. Kanematsu et al. does disclose ANDing bitmap data with random masks, however this operation does not consist of placing things into groups and categories based on properties that can be identified. Therefore, Kanematsu et al. discloses the limitation of a print executer which reads out scan data without classifying.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation, "wherein the relationship between the K and the F is prime to each other" is inconsistent with the meaning of a prime number. It is suggested that the applicant intends the claim to read wherein the remainder between the division of the number of lines read and the number of lines fed is non-zero. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2, 4, 6, 7, 10-17, and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwai U.S. Patent 6,683,703 and Kanematsu et al. U.S. Patent 6,183,055.

Referring to claim 1, Iwai discloses a multi-function printer which is a combination of a scanner and a printer (Fig. 1, col. 4, lines 58-62), comprising: a first data storage in which scan data scanned in by the scanner is stored, wherein one line of a scan operation of the scanner corresponds to one line of the scan data in the first data storage (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44); a classificational executor which reads out the scan data from the first storage and classifies the scan data (CCD 334 of Fig. 3, col. 10, lines 45-48); a second data storage in which the classified scan data is stored (page memory 323 of Fig. 3, col. 9, lines 6-35). Iwai does not disclose expressly printing utilizing a plurality of print passes, classifying the scan data in compliance with the print passes, and a print executor which prints using a plurality of print passes. Kanematsu et al. disclose printing utilizing a plurality of print passes (col. 15, lines 20-24), classifying data into compliance with even and odd bit data and print passes (col. 15, lines 19-24), a print executor which reads out the classified scan data from the data storage by each of the print passes, generates print image data having a data format suitable for a print processing on the basis of the read-out scan data without classifying the scan data (MPU 401 of Fig. 3, col. 10, lines 23-28), and drives a print head of the printer on the basis of the print image data in each of the

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print passes (MPU 401 of Fig. 3, col. 7-8, lines 59-67, 1-2). Iwai and Kanematsu et al. are combinable because they are from the same field of printing systems separating even and odd bit data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to classify data in print passes in the printing system of Iwai. The motivation for doing so would have been to improve image quality and printing speed. Therefore, it would have been obvious to combine Kanematsu et al. with Iwai to obtain the invention as specified in claim 1.

Referring to claim 2, Kanematsu et al. disclose the resolution of the printer head is coarser than a resolution to be printed on a print medium by the printer (col. 3, lines 54-64).

Referring to claim 4, Kanematsu et al. disclose wherein there are two print passes for one line of data (col. 15, lines 20-24). Iwai discloses the classificational executer classifies the scan data into even bits thereof and odd bits thereof and stores them in the second data storage (registers 111-114 of Fig. 4, col. 10, lines 50-59).

Referring to claim 6, Iwai discloses the multi-function printer as set forth in claim 5, wherein the classificational executer classifies the scan data into even bits and odd bits in every line of the scan data, and stores data of the even bits of the scan data in an even bit data storage in the second data storage every line of the scan data and stores data of the odd bits of the scan data in an odd bit data storage in the first data storage every line of the scan data (col. 10, lines 50-59). Kanematsu et al. disclose the print executer executes an interlaced processing in which the scan data is extracted from the even bit data storage and the odd bit data storage every other line respectively (col. 10,

lines 37-39) (col. 14-15, lines 65-67, 1-4), and executes the printing (col. 10, lines 50-52).

Referring to claim 7, Iwai discloses the multi-function printer as set forth in claim 6, wherein the classificational executer has a latch buffer of a predetermined data length, and latches the scan data of the predetermined data length into the latch buffer and obtains the scan data to be stored in the even bit data from even bits of the latch buffer and the scan data to be stored in the odd bit data from odd bits of the latch buffer (col. 8, lines 57-64).

Referring to claim 10, Iwai disclose the multi-function printer as set forth in claim 6, wherein the classificational executer is constituted of hardware (CCD 334 of Fig. 3, col. 10, lines 45-48).

Referring to claim 11, Kanematsu et al. disclose the multi-function printer as set forth in claim 10, wherein the interlaced processing executed in the print executer is performed as a software processing (col. 18, lines 1-7).

Referring to claim 12, Kanematsu et al. disclose the multi-function printer as set forth in claim 11, wherein the software processing is executed in a central processing unit, which is shared between the scanner and the printer and which is the only one in the multi-function printer (col. 18, lines 1-7).

Referring to claim 13, Iwai disclose the multi-function printer as set forth in claim 1, wherein the first data storage (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44) and the second data storage (registers 111-114 of Fig. 4, col. 10, lines 50-59) are provided in different memories.

Referring to claims 14 and 20, Iwai disclose a multi-function printer which is a combination of a scanner and a printer (Fig. 1, col. 4, lines 58-62), comprising: a first data storage in which scan data scanned in by the scanner is stored, wherein one line of a scan operation of the scanner corresponds to one line of the scan data in the first data storage (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44); a classificational storing section which reads out the scan data from the first data storage and classifies the scan data according to an appropriate data format (CCD 334 of Fig. 3, col. 10, lines 45-48) and which stores them in a second data storage (registers 111-114 of Fig. 4, col. 10, lines 50-59). Pre scanned data is classified into even and odd data elements, which are then printed. Iwai does not disclose expressly a print image data generator which prints every reading out and a print executer that prints in the main scan pass direction. Kanematsu et al. disclose printing one line of data by movements of a print head in a main scan pass direction by X times (S104 of Fig. 6, col. 10, lines 37-39), a print image data generator which sequentially reads out the classified scan data from the second data storage and generates a print image data on the basis of the read-out scan data for every reading out without classifying the scan data (MPU 401 of Fig. 3, col. 10, lines 23-28); and a print executer which executes printing with the print head moved in the main scan pass direction on the basis of the print image data generated by the print image data generator (MPU 401 of Fig. 3, col. 7-8, lines 59-67, 1-2). Iwai and Kanematsu et al. are combinable because they are from the same field of printing systems separating even and odd bit data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to print data in print passes in the

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printing system of Iwai. The motivation for doing so would have been to improve image quality and printing speed. Therefore, it would have been obvious to combine Kanematsu et al. with Iwai to obtain the invention as specified in claims 14 and 20.

Referring to claim 15, Iwai disclose the multi-function printer as set forth in claim 14, wherein the classificational storing section is constituted of hardware (CCD 334 of Fig. 3, col. 10, lines 45-48).

Referring to claim 16, Kanematsu disclose the multi-function printer as set forth in claim 15, wherein the print image data generator is implemented via a software processing (col. 18, lines 1-7). Iwai discloses the multi-function printer has only one central processing unit, which executes the software processing and which is shared between the scanner and the printer (CPU 311 of Fig. 2, col. 8, lines 51-54).

Referring to claim 17, Kanematsu discloses the multi-function printer as set forth in claim 14, wherein the print image data generator also executes an interlaced processing that data is extracted from the scan data stored in the first data storage every predetermined lines (col. 10, lines 23-28).

Referring to claim 19, Iwai disclose a control method for a multi-function printer, which is a combination of a scanner and a printer (Fig. 1, col. 4, lines 58-62), comprising the steps of: scanning data using the scanner, and storing the scanned data in a first data storage, wherein one line of a scan operation of the scanner corresponds to one line of the scan data in the first data storage (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44); reading out the scan data from the first data storage; classifying the scan data scanned read out from the first data storage (col. 10, lines 45-48); storing the

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classified scan data in a second data storage (registers 111-114 of Fig. 4, col. 10, lines 50-59). Iwai does not disclose expressly printing utilizing a plurality of print passes, classifying the scan data in compliance with the print passes, and a print executor which prints using a plurality of print passes. Kanematsu et al. disclose printing utilizing a plurality of print passes (col. 15, lines 20-24), classifying data into compliance with even and odd bit data and print passes (col. 15, lines 19-24), reading out the classified scan data from the second data storage by each of the print passes; and generating the print image data, which has a data format appropriate for a print processing, on the basis of the read-out scan data without classifying the scan data (MPU 401 of Fig. 3, col. 10, lines 23-28), and driving a print head of the printer on the basis of the print image data in each of the print passes (MPU 401 of Fig. 3, col. 7-8, lines 59-67, 1-2). Iwai and Kanematsu et al. are combinable because they are from the same field of printing systems separating even and odd bit data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to classify data in print passes in the printing system of Iwai. The motivation for doing so would have been to improve image quality and printing speed. Therefore, it would have been obvious to combine Kanematsu et al. with Iwai to obtain the invention as specified in claim 19.

Referring to claim 21, Iwai disclose a multi-function printer which is a combination of a scanner and a printer, comprising: a first data storage in which first data based on scan data scanned in by a scanner is stored (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44); a classificational executor which reads out the first data from the first data storage wherein the classificational executor classifies the first data in compliance

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with a position of the first data (CCD 334 of Fig. 3, col. 10, lines 45-48); a second data storage in which the classified first data is stored (registers 111-114 of Fig. 4, col. 10, lines 50-59). Iwai does not disclose expressly printing utilizing a plurality of print passes, classifying the scan data in compliance with the print passes, and a print executor which prints using a plurality of print passes. Kanematsu et al. disclose printing utilizing a plurality of print passes (col. 15, lines 20-24), classifying data into compliance with even and odd bit data and print passes (col. 15, lines 19-24), and a print executor which reads out the classified first data from the second data storage by each of the print passes, generates a print image data used for a print pass to be processed on the basis of the classified first data in accordance with the print pass to be processed (MPU 401 of Fig. 3, col. 10, lines 23-28), and drives a print head of the printer on the basis of the print image data in each of the print passes (MPU 401 of Fig. 3, col. 7-8, lines 59-67, 1-2). Iwai and Kanematsu et al. are combinable because they are from the same field of printing systems separating even and odd bit data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to classify data in print passes in the printing system of Iwai. The motivation for doing so would have been to improve image quality and printing speed. Therefore, it would have been obvious to combine Kanematsu et al. with Iwai to obtain the invention as specified in claim 21.

Referring to claim 22, Kanematsu et al. disclose wherein a classification number of the first data is related to a number of the print passes (col. 15, lines 19-24).

Referring to claim 23, Iwai disclose wherein the first data includes, a plurality of bits (photodiodes S1 to S7500 of Fig. 4, col. 10, lines 38-44), and wherein the classificational executer classifies the bits included in the first data in compliance with the position of each bit in the first data (CCD 334 of Fig. 3, col. 10, lines 45-48).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwai U.S. Patent 6,683,703 and Kanematsu et al. U.S. Patent 6,183,055 as applied to claim 6 above, and further in view of Wakasugi U.S. Patent 6,157,937.

Referring to claim 8, Iwai discloses classifying scan data into even and odd bit data but does not disclose expressly utilizing an even and odd look up table. Wakasugi discloses an even and odd look up table (col. 4, lines 1-3). Iwai and Wakasugi are combinable because they are from the same field of image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to utilize even and odd look up tables to convert data. The motivation for doing so would have been to improve the speed of determining the even and odd numbers. Therefore, it would have been obvious to combine Wakasugi with Iwai to obtain the invention as specified in claim 8.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwai U.S. Patent 6,683,703 and Kanematsu et al. U.S. Patent 6,183,055 as applied to claim 6 above, and further in view of Merna et al. U.S. Patent 5,239,312.

Referring to claim 9, Kanematsu discloses the multi-function printer as set forth in claim 6, wherein the print executer alternately repeats: a processing for reading out the data for even bit data and odd bit data (S103 of Fig. 6, col. 10, lines 23-28), performing one print pass (S104 of Fig. 6, col. 10, lines 37-39) and feeding the print medium (S105 of Fig. 6, col. 10, lines 42-44), and; a processing for reading out the scan data for the even bit data and odd bit data (S103 of Fig. 6, col. 10, lines 23-28), performing one print pass (S104 of Fig. 6, col. 10, lines 37-39) and feeding the print medium (S105 of Fig. 6, col. 10, lines 42-44). Kanematsu does not disclose expressly wherein the remainder between the division of the number of lines read and the number of lines fed is non-zero, which is how the examiner has determined claim 9 to read. Merna et al. disclose having the remainder between the division of the number of lines read and the number of lines fed is non-zero (Fig. 4, col. 6, lines 7-14). Iwai, Kanematsu et al., and Wakasugi are combinable because they are from the same field of printing systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to move the print head a number of lines which is different than the number of lines printed. The motivation for doing so would have been to improve image quality by avoiding the effects of deterioration on the individual print jets. Therefore, it would have been obvious to combine Wakasugi with Iwai and Kanematsu et al. to obtain the invention as specified in claim 9.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter K. Huntsinger whose telephone number is (571)272-7435. The examiner can normally be reached on Monday - Friday.

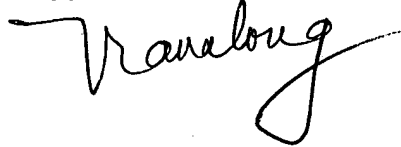
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PKH

DOUGLAS Q. TRAN
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'Douglas Q. Tran', written over the printed name and title.